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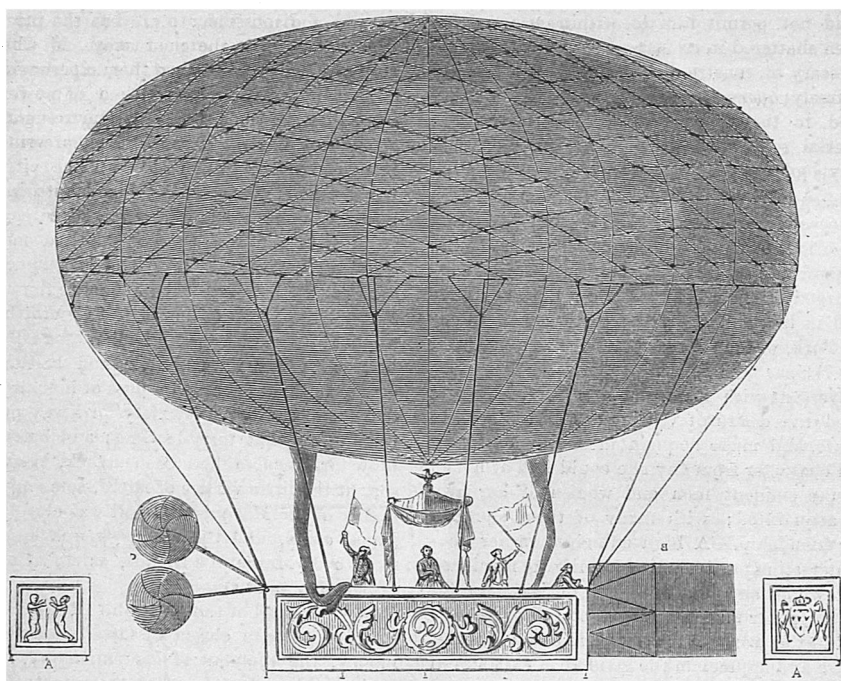
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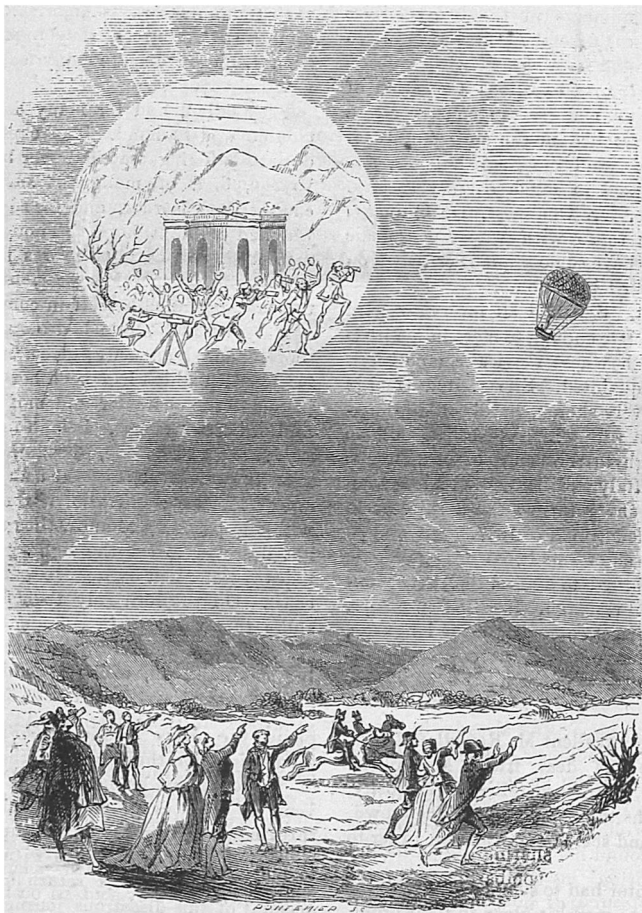
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BALLOONS AND BALLOONING.

THE letters which Etienne Mongolfier received from his brothers, stating their views and giving him their encouragement, found him patiently to endure his celebrity. He desired and asked only one thing, which was to return to his native place, the



ASCENT OF A BALLOON FROM THE PARK OF ST. CLOUD, JULY 15, 1784.



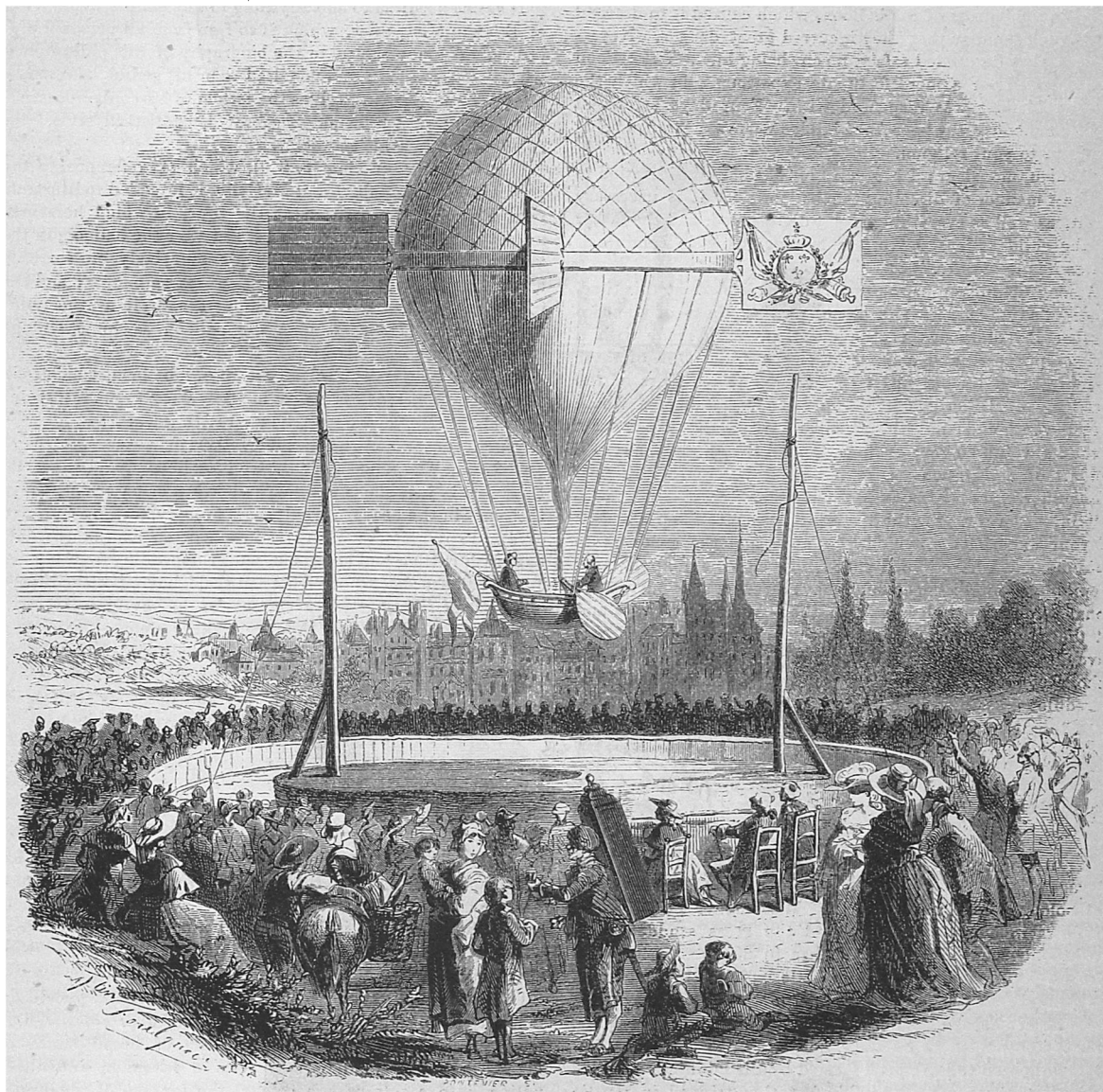
THE ABOVE BALLOON AT A GREATER ELEVATION.

him depressed, fatigued, harassed in every way, tormented at once by his rivals and his admirers. His wife vainly supplicated scene of his cherished dreams, to hear once more the whispers of its poplars and the rippling of its waters; to resume those

walks with his brother Joseph, in which their feet only traversed a narrow space, while their thoughts surveyed the world. But as commissioners had been appointed by the Academy to inspect his experiments and to confirm his discovery, honour did not permit him to withdraw; and his balloon having been shattered in its last ascent from Annonay, it was found necessary to construct another; but whilst the workshops were freely opened, and assistance and help of every kind offered, to those who strove to excel the two brothers in the aerial route which they alone had disclosed, Etienne could only look for co-operation and support among his private friends. A rich manufacturer of painted paper, in

was truly melancholy. It required all the devotion of his friends, Reveillon, Argant, the Marquis d'Arlandes, and others; it required his personal activity, his extraordinary intellect, and the composure which he owed to an unchangeable gentleness of disposition, to prevent the priority which belonged to him from being snatched away. M. Charles and the Messrs. Robert could only repeat his experiments; they succeeded, however, in gaining the favour of powerful protectors, and, strange to say, the Duc de Chartres entrusted to them the management of the experiment, represented in the first of the annexed engravings (p. 240).*

Couplets full of acrimony, and cutting caricatures, accom-



ASCENT OF A BALLOON FROM DIJON, APRIL 25, 1784.†

the Faubourg St. Antoine, the excellent M. Reveillon, threw open his vast warehouses to his dear friend Mongolfier, offered him his services, and, with unparalleled generosity, abandoned his beautiful gardens to the curiosity of the crowd, who broke down the railings and scaled the walls, in order to behold the wonderful machine.

The struggle which the inventor had to sustain against those who strove to outdo him, and to turn his glory to their profit,

* This ascent took place under the superintendence of Messrs. Robert, two brothers, who went up in the balloon with M. Colin. A A, the two ends of the gallery, representing Castor and Pollux and the arms of France; n, the Rudder; c, Oars or Wings.

panied the prince in his ascent; most of these were without foundation, for they accused the duke of cowardice, when, on the contrary, he had shown presence of mind in giving vent to the gas, and in splitting the balloon, which threatened to burst. In an unpublished letter from Beaumarchais, who was an eye-witness, to Etienne Mongolfier, who was then on his return home, we find the following account of this disastrous journey:—

† This balloon, which went off at five o'clock in the evening, reached Magni-lez-Auxonne at twenty-five minutes past six, having traversed a space of about two miles and a half through the atmosphere. Abbé Berteau and M. Morvaux went up in it.

"Paris, 18 July, 1784.

"You have doubtless heard what has taken place at St. Cloud. Marquis le Duc de Chartres, the two Roberts, and their brother-in-law, ascended, as Charles did at the Tuileries; but, fearing to touch the trees, they suddenly threw out so much ballast that they rose too high, and entered a cloud, which, I know not how, caused the interior balloon, which was filled with atmospheric air, to burst with an explosion. They then endeavoured, as they still continued to rise, to open the valve, in order to descend; but they could neither open it nor the lower appendage, upon which the interior balloon had collapsed. After consulting together, they decided to make holes in the bottom of the balloon, which caused it to descend with such rapidity that they incurred great danger. Nevertheless, they descended safely, no one being hurt. The balloon was mended for a more fortunate experiment, in which the interior bladder was dispensed with. Four days before, at the Luxembourg, the poor Abbé Miolan narrowly escaped being a martyr to your religion.

"Adieu, monsieur; I beg you to give some consideration to the best manner of directing the balloon; for it is necessary for it, as well as everything else, to be guided, and the father of the child at least owes it a leading-string to conduct it where he pleases, &c."

Among the numerous ascents which took place at this time, those of Guyton Morvaux alone, putting those of the two brother inventors out of the question, were made with a serious purpose, and arrived at any result. One of these is represented by our artist (p. 240). The members of the Academy of Dijon sought for a means of guidance which they never found; but the ascents of Guyton, and the exact accounts which he gave of them, tended somewhat to advance the art of aerostation. The following letter from Etienne Mongolfier bears testimony to this fact:—

"Sir,—I have read with the greatest pleasure the particulars of your experiments, which you have had the goodness to send me, and I have joined your fellow-citizens in applauding the zeal and intelligence which have directed all your operations. You have indeed felt all the possible advantages and all the actual inconveniences of the machine of which you have made use. I cannot but admire your ulterior views, and exhort you to establish their solidity, in the eyes of the incredulous, by the continuation of your experiments.

"The unforeseen danger which prevented you from realising

your project of travelling from place to place, should not discourage you from trying again. Above all, I admire the candour with which you state the obstacles that thwarted your experiments, and the means by which you contrived to surmount them. Thus it is, that one should always write upon scientific subjects, sacrificing one's self-love to their advancement, and giving an account even of one's failures, in order that others may avoid them. A memoir such as yours is more useful than twenty of those poetical descriptions, whose authors take a glory in adding a polish to the marvellous, as if nature were not sufficiently grand without the foreign ornaments which are furnished by their imaginations."

It seems needless to add anything to this simple, noble letter of Etienne Mongolfier, which is so free from all personal prejudice. We may return to the biography of this philosopher, whose soul was even more exalted than his genius, and whose temperate writings, as well as the letters of his contemporaries, which were written in an exaggerated, egotistical style, give some insight into his character.

Our second engraving (p. 240), which has reference to the ascent of Messrs. Robert and M. Colin, is intended to illustrate some French verses written at the time, in which horsemen are represented as racing at full speed after the balloon, in the vain attempt to overtake it, while everybody on earth is amazed at the daring of the adventurous aeronauts; and the inhabitants of the moon—philosophers as well as the uninformed multitude—look upon the balloon as some strange planet that has wandered out of its orbit.

The following account of an ascent of a balloon, which took place June 26, 1794, is given in Carlyle's "French Revolution," and will, we are sure, be read with interest:—

"Or see, over Fleurus in the Netherlands, where General Jourdan, having now swept the soil of liberty, and advanced thus far, is just about to fight, and sweep or be swept, hangs there not in the heaven's vault some prodigy, seen by Austrian eyes and spy-glasses: in the similitude of an enormous wind-bag, with netting and enormous saucer depending from it? A Jove's balance; your poor Austrian scale having kicked itself aloft, out of sight? By heaven, answer the spy-glasses, it is a Mongolfier, a balloon, and they are making signals! Austrian cannon-battery barks at this Mongolfier; harmless as dog at the moon: the Mongolfier makes its signals, detects what Austrian ambuscade there may be, and descends at its ease. What will not these devils incarnate contrive?"

A FEW WORDS ON THE FUNGUS TRIBE.

CHAPTER I.

THE range of growth of the species of this remarkable kind of vegetation is as surprising as the variety in size, form, and colour, which they exhibit. We wander in the dewy meadows in autumn, and we find the grass studded with mushrooms, some eight or ten inches in diameter, others but half-developed and looking like little bunches of buttons on the ground; we see broad rings in the grass, of a deeper green and coarser herbage than other parts of the same field display, and we know them to be the "fairy-rings," which were formerly supposed to have been formed by the midnight gambols of the fairies, when, with nimble feet, they tripped in mystic dance beneath the moonbeams; those whom Prospero thus adjoins:—

"You demi-puppets, that

By moonshine do the green sour ringlets make,
Whereof the ewe not bites;—and you whose pastime
Is to make midnight mushrooms."

These dark rings are now known to be caused by the growth of fungi, which, it is supposed, spread outwards from a centre, every year of their growth exhausting the soil of the circle which they have occupied, and throwing out fresh germs to one beyond. As we penetrate into the woods, we see huge fringes of fungus growth hanging out from the trunks of trees, and on the decayed stumps we perceive the most exquisitely tinted clothing of what, by the sea-side, we should conceive to

be shells clustered in shelves one above the other, and all grouped in the most vigorous and beautiful forms; we touch them, and they are wood-like; we take a chisel and hammer, and such hard work is it to chip them off, that we find it easier to take bark and all than to sever these parasites from the trunk on which they have fixed themselves. These beautiful objects are all fungi. Some of them in form and pencilling much resemble the beautiful sea-weed *Padina pavonia*, but their painting is different and consists of broad bands of black, delicately shading into gray or lavender, and alternating into a soft orange colour, the texture of the upper surface being velvety, like the wing of a moth, and the lower part of a creamy white, full of minute pores which give it much the appearance of coralline formation.

We have had clusters of them brought us from the woods, so beautiful as to induce us to group them as nearly as possible as they would appear in their native habitat, and arrange them for a basket for flowers; and when set off by a massive bunch of roses or dahlias, this structure formed an object as beautiful as it was curious, and lasted for very many months [perfectly unchanged in form or colour. Besides these, and a thousand other varieties which infest trees, posts, &c., are a multitude of lovely little gems of all hues, which lie scattered about on the bare heath, or spring out of decayed leaves, bits of stick, wood, &c. Some are scarlet, others orange, snow-white, black,